

REMARKS

Claim 27 is the sole pending claim in the present application.

The Examiner has rejected claim 27 under 35 USC 102(b) as being anticipated by Neukermans et al. U.S. Patent number 5,629,790.

The Examiner has further rejected claim 27 under 35 USC 103(a) as being unpatentable over McClelland et al. U.S. Patent number 6,201,629 in view of Swartz et al. U.S. Patent number 6,102,294.

The applicant will separately discuss the 102(b) and 103(a) rejections.

ARGUMENTS
35 USC 102(b) Rejection

Applicant respectfully disagrees with the Examiner's rejection of Claim 27 as being anticipated by Neukermans et al. 5,629,790. Neukermans teaches away from Claim 27 and furthermore does not disclose all the elements of Claim 27.

Applicant notes that Neukermans teaches a method for eliminating unwanted modes of vibration in a micro scanner. Furthermore, the part of Neukermans to which the Examiner refers relates to the identification of a most desirable mode, that of torsional rotation shown in Figure 1a and designated as mode 1.

This view is amplified by Neukermans et al. '790 patent where it states, "With reference to FIGS. 1a-1e, various vibrational modes of torsional scanners are shown. FIG. 1a depicts a top view of a **desired or principal** torsional mode of a micro scanner in accord with the present invention. This mode is designated as mode 1 herein." (column 3, lines 20 – 24) Neukermans goes on to state, "In FIG. 1b, a vertical shaking mode is shown in a side view wherein the mirror 12 is moving up and down in the directions shown by the arrows, leaving a horizontal plane. This mode is designated as mode 2 herein." (column 3, lines 25 – 29) Continuing down the column to lines 39-40, Neukermans states, "Modes 2-5 are undesired, but cannot be completely eliminated." Further down the column in lines 48-50, Neukermans adds emphasis to this point as, "By maintaining an adequate separation between the lower torsion mode and the next higher mode, less energy is transferred to these undesired modes." (emphasis added)

In contrast to the apparatus of Neukermans et al. '790, the claim recites an apparatus "...wherein the resonant reflector is a microelectromechanical (MEMS) membrane and wherein the movement path includes deformation of the membrane." Such an apparatus is not only expressly taught away from by Neukermans et al. '790, but Neukermans furthermore does not disclose an apparatus having all the elements of Claim 27.

It is further noted that the cited Figures and text of Neukermans '790 do not mention "deformation of the membrane." Rather, the vibrational mode of Figure 1b pertains to a periodic vertical translation of the entire mirror 12. Neukermans '790 does state, "Other modes, called plate modes, are possible but for most applications, the frequency of plate modes are much higher and would be removed if separation is achieved with respect to the modes which have been illustrated." (column 3, lines 39-43) Thus, at most this oblique reference might be considered a teaching away.

Applicant notes that the "microelectromechanical (MEMS) membrane" of Claim 27 is an entity with the property: "...wherein the scanning frequency is an integral multiple of the resonant frequency..." Applicant notes that Neukermans '790 makes no mention of either a "microelectromechanical (MEMS) membrane" or of a "scanning frequency [that] is an integral multiple of the resonant frequency." Thus Neukermans et al. '790 does not disclose all the elements of Claim 27.

Applicant urges the Examiner to recognize the Neukermans '790 teaches away from Claim 27 and does not disclose an apparatus having all the elements of Claim 27. Applicant thus urges the Examiner to withdraw the 35 USC 102(b) rejection of Claim 27.

35 USC 103(a) Rejection

Applicant respectfully disagrees with the Examiner's rejection of Claim 27 under 35 USC 103(a) as being unpatentable over McClelland et al. U.S. Patent number 6,201,629 in view of Swartz et al. U.S. Patent number 6,102,294.

The Examiner draws our attention to "...a resonant reflector 31..." that could utilize the "deformable mirror 150 taught by Swartz et al." Applicant notes that item 31 of Figure 8D is not a resonant reflector, but rather "One or more external

electromagnets 31 [that] are mounted either slightly displaced above the mirror structure or at an angle to it.” (column 11, lines 20-41)

The applicant was not able to identify any other item disclosed by McClelland ‘629 that might be construed to be “a resonant reflector 31 aligned to the scanning mirror 3.” Applicant thus submits that the cited portions together do not correspond to all elements of the claim. Even if combined, the references appear to lack several aspects of claim 27, including, for example, “wherein the scanning frequency is an integral multiple of the resonant frequency.” Also, Applicant notes that it does not appear possible to combine McClelland et al. 6,201,629 and Swartz et al. 6,102,294 in the manner the Examiner suggests, much less in a way that would satisfy all of the limitations of the claim.

Furthermore, the Examiner has identified no motivation to combine the teachings. Given the lack of element-to-element identity and the failure of the references to identify and address issues addressed by the claimed subject matter, Applicant believes that one of ordinary skill in the art would not be led to combine these references. Consequently, Applicant believes that failure to identify a suggestion to combine renders the rejection inappropriate.

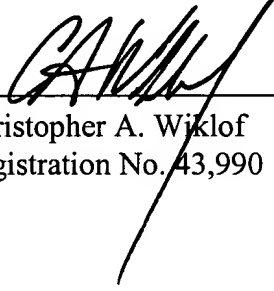
Applicant urges the Examiner to withdraw his rejection of Claim 27 under 35 USC 103(a).

SUMMARY

Applicant believes this matter to be fully responsive to the Office Action of August 6, 2003 and respectfully urges the Examiner to issue a Notice of Allowance. The Examiner is invited to contact Christopher A. Wiklof at (425) 415-6641 with any issues that may advance prosecution of the application on the merits.

Respectfully submitted,

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Enclosures:

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Transmittal and Fee Calculation Cover Sheet (+ copy)
Petition for an Extension of Time (+ 2 copies)
Copy of Office Action dated August 6, 2003

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